

Deadliest Gas Made by U.S.

America's Super-Poison, Most Terrible Instrument of Man-slaughter Ever Conceived Would Have Filled No Man's Land With Hun Corpses had Armistice Not Stopped World War

It had the fragrance of geranium blossoms. It was an oily amber liquid, highly explosive, and burning into flame with water. It was the American super-poison gas, deadly by contact or by inhalation of the smallest detectable portion. A drop on the hand would cause intolerable agony and death after a few hours. It was called methyl (partly because that name did not describe it) and it was the climax of this country's achievement in the lethal arts.

The signing of the armistice spared the enemy any first-hand acquaintance with the terrors of methyl. Major Gen. W. L. Sibert, in command of the Chemical Warfare Service, had directed that 2,000 tons of it in shell and drums be in readiness on the battlefield March 1, 1919. Ten tons a day were being produced at an eleven-acre plant near Cleveland, Ohio, and the plant was two months ahead of its schedule when French crossed No Man's Land to offer terms to a beaten foe. It is estimated that ten tons of methyl is one ton more than enough to destroy a populated island, and so it is not difficult to guess what would have happened had Hindenburg and his cohorts persisted until spring.

Two days after the armistice was signed, workers began dismantling the big plant. They crapped the complicated and expensive apparatus, every piece of which had been specially planned and manufactured for the production of the most terrible instrument of man-slaughter ever conceived. On Feb. 1, the work of demolition was completed. There remained no trace of that scattering array of barracks and laboratories which had been a cradle of death. But the formulas, processes, and personnel were painstakingly set down for the records at Washington against the contingency of another war.

Bury It In Ocean
There did remain, however, tons and tons of methyl. What was to be done with it, now that there was no longer any active occasion for exterminating Germany? Cleveland did not want the deadly stuff dumped into Lake Erie, and there seemed no practicable method of neutralizing its deadliness chemically. Almost enough was on hand to destroy the entire people of the United States, and some safe way must be found to dispose of it.

The ocean was selected as its catch-basin. Difficulties were met in transporting the stuff from Cleveland to the ocean. Handling such quantities was perilous. So it was put into big iron containers, for it does not react on iron, and those containers were loaded into freight cars. Then there was assembled the most extraordinary train probably that ever traversed American railroad tracks. It moved under an armed guard and on a special schedule. No railroad employee rode on it except the engine driver. The train moved slowly, so that two days were consumed in the journey from Cleveland to the Edgewood Arsenal near Baltimore. And that the iron containers were stowed gently in a ship and taken fifty miles to sea, where they were lowered over the side into water three miles deep.

Rugs will eat pinholes into these containers, and there will be a gradual intermixture of water with their fatal contents. In such circumstances there is no flame, but a slow chemical reaction which produces two nontoxic compounds. Experts do not believe even that fish will perish from the presence on the ocean bed of this vast quantity of poison. When the salt water of the Atlantic embraced the last of the iron tanks, Tulsa witnessed a chapter in American war effort which, until now, has been a secret scrupulously guarded.

Compare this secret new compound with "mustard," which the

chemists dubbed "king of poison gases." Mustard was first used by the Germans, with terrific effect, at Ypres July 29, 1917. Thereafter its use became general, and afforded such marked tactical advantage to the enemy that retaliation by the allies became imperative as a means of self-preservation. American chemists devised a formula one-fourth more toxic than that used by the Germans. The gas known to chemists as diethylthiophosphoramide, in contact with light, and on reaching the lungs breaks down, setting up what is called "chemical" pneumonia, usually fatal.

Methyl is somewhat more volatile, and is comparable in that way to mustard. Instead of being offensive at first contact it sets on an acute and almost unendurable pain. It does not spread through the tissues, but poisons the blood and the lungs. It hardens the cell tissues of the lungs, and causes simultaneously strangulation and a heart affection which speedsily produces violent death. If the gas is inhaled in any perceptible quantity it kills almost instantly. It is estimated to be seventy-two times deadlier than mustard.

The process of manufacturing the two poisons differ radically. It is not permissible even now to tell what basis is used for methyl, but its manufacture from the raw material requires but a short time. The equipment is elaborate. No fear is felt that experimenters will be able to make such gas. That the United States came to know of such a poison was due, in the first place, to an accident. Years ago a student of chemistry, then living in another country, happened upon a combination which almost cost him his life. It was a compound never made before, and he came to this country, and when the question of poison gases came to the fore he recalled the information to the government.

Workers Protected
Not one worker died from poisoning. In large measure this was due to the precautions enforced by Captain George A. Hummer, physician from the Mayo Institute, whose work was the care of lives in an institution dedicated to the destruction of life. But, in addition to these precautions, a mask and suit of clothing was devised, which afforded protection against methyl. Defensive work went hand in hand with the offensive work. None of the gas masks invented to save lives from mustard gas and the other poisons was effective against methyl. It is a certainty that even now should it ever become necessary to use this poison in warfare, the enemy would be a long time finding a way to protect himself. But the workers themselves were equipped with a uniform and face covering which afforded safety.

The work went ahead with remarkable rapidity. An entire plant was supplied with an equipment such as had never been used before. To complete the plant required three months. The speed accomplished was due to the fact that the biggest industries in the United States lent for that kind of work put themselves behind Uncle Sam in his war efforts. Colonel F. M. Dorsey, formerly chemical engineer of the National Lamp Works of the General Electric

company at Willoughby, Ohio, a suburb of Cleveland, on July 29 he installed Major James H. Conant of the Research Division there, with Lieut. Col. W. G. Wilcox in charge as superintendent. On July 26 there was a guard on hand of twenty-five men, and work was under way. The plant was in such a condition that it was necessary to grade the dirt floor, wire it for electricity, provide for sewerage and water, install decks and chairs. The first of the laboratory equipment arrived in trucks as personal baggage. Colonel Dorsey was in a hurry.

Workers Kept Confined
Space will not permit a detailed narrative here of all the obstacles overcome, of all the vexatious barriers to be hurdled in order to make this a record achievement in speed. The almost secrecy surrounded the efforts. It was forbidden to officers and men to divulge the nature of the product or even the existence of the plant. Mail was censored. A Cleveland postoffice lock drawer was used, and letters were mailed and received there for the very name of Willoughby was verboten in correspondence. Telegrams were sent through the headquarters at Nela Park. The experimental plant, as it was called, was conducted as an army post, and the men were not permitted to visit Cleveland. The work was hard and there was no recreation. But patriotic men and women of the neighborhood, who knew something was being done for the country, but not what was being done, supplied the men with reading matter, a violin, fruit, and pies, and even a grand piano!

Klaxon horns were installed and an alarm system agreed upon, and the men in the plant worked always with their masks in the "alert" position. A fire and gas brigade was organized and alarms were given at intervals, sometimes "for cause." But none of the men was lost from poisoning. The only death at the experimental station was from influenza.

The methyl was packed partly in 155-millimeter shells, each carrying about 10 pounds of the liquid, and partly in drums carrying from 250 to 400 pounds to be dropped from airplanes. It is estimated that fifty of these drums, judiciously dropped about Manhattan Island, would kill its population.

In this connection it is pertinent to reveal some facts, until now not known to the public about the manufacture of mustard gas. The chlorhydric process of making this poison was unsuited to quantity production, and it was not until February, 1918, that an English professor's discovery of a new method was cabled to America. The cablegram anticipated by just two days a discovery of the same reaction at George Washington University in Washington, where experimental tests were under way.

Outsiders Protected
In March a small experimental station was established at Taft avenue and East 131st street in Cleveland, with Colonel Dorsey (then Mr. Dorsey of the National Lamp

Works) as technical director. The little two-story office building of the great Lakes Refining company became in August, the offense section of the Development Division, with Colonel Dorsey in charge. It was connected with a large single-story structure suitable for plant operations.

This plant, within six miles of the Cleveland public square, was in a congested district, and great precautions were necessary to avoid passing the neighborhood. It was not suspected the deadly material being prepared within. But few outsiders ever became aware of the nature of the work being done in East 131st street, and no serious trouble was caused by it. The second-story room was converted into a control and research laboratory, and was equipped with ten well-ventilated hoods and all the other necessary equipment. The rapid assembly of the materials was made possible through the co-operation of Cleveland manufacturing concerns, whose attitude throughout the war has been thus expressed: "If we have it, the government can have it; if we haven't, we'll get it."

Many Experts Employed
To the Chemical Warfare Service was assigned the Bureau of Mines. Dr. W. K. Lewis, representing the bureau, went to Cleveland on April 28, 1917, to enlist the aid of the National Carbon company and the National Lamp Works of the General Electric company. At that time mustard gas was the main goal, and electric power was required to make chlorine and graphite for the electrodes. Moreover, expert knowledge about charcoal was required on the defensive side of the work, in devising gas masks and other protective apparatus. For example, tests at Nela Park proved that coconut shells were the best raw material for making absorbent charcoal, and so that material became the standard. The plant of the Great Lakes Refining company in Cleveland was taken over for mustard gas research, and its personnel of 25 was increased to 175 officers and enlisted men. That was a microscopic but typical example of the methods adopted to meet the greatest emergency in American military history.—The New York Times.

FRENCH STILL WANT FOE TO PAY ENTIRE WAR COST

PARIS, May 9.—The financial clauses of the treaty between the allied and associated nations and Germany continue to be the most discussed sections of the document and are almost universally condemned by the commentators for not making Germany responsible for the payment of the entire cost of the war and for leaving France with a burden placed at 170,000,000,000 francs.

"What will the stupefaction of France be when it is realized that her victory condemns her to bankruptcy?" asks Le Nouvelle. The democratic socialist's official organ, Humanite, condemns the treaty unreservedly.

Divorce for John F. Malin
John Goins, of 1217 East Sixth street, has returned from France, according to a report made by the home service section of the Red Cross. Goins went overseas on the Agamemnon, sailing from New York August 26 and landing in Brest, France. He saw no active service after arriving, but his ship had the experience of sinking two submarines en route.

Decree of divorce was granted to John F. Malin in district court Saturday in his suit for legal separation from Day S. Malin, the court finding as true the plaintiff's allegation that his wife had deserted him. The decree was taken by default, court records showing that the defendant could not be found at her last known address, 1934 Joplin street, Joplin, Mo.

NEW GOODS

Are Arriving Every Day at the

Tulsa Garment Factory

1/4 OFF
All Silks, Taffetas, Satins, Georgettes, Crepe de Chine, Monday only. Lovely new fancy Georgettes and Crepe de Chine, 1/4 off.

OTHER SPECIALS WE WANT YOU TO NOTICE

Calico.
Just what you have been looking for. Special for this sale, yard, 10c

36-Inch Percales
Light and dark colors, many new and fancy patterns. Special for this sale, 19c

Silk and Wool Coat Suits.
All new models in navy blue, black, gray, tan and checked. For this sale \$12.99 only

One-piece silk dresses, in plain and fancy colors, embroidery and georgette trimmed. Special for this sale \$9.95

Women's and Misses' Gingham Dresses.
Suitable for street or house, one-fourth off during this sale. \$3.00 Dresses \$2.25 \$4.00 Dresses \$3.00 \$4.50 Dresses \$3.40 \$5.00 Dresses \$4.00

One Lot of Misses' and Children's Dresses.
Odds and ends in all sizes. Special for this sale 50c

Organdies.
For sheer, pretty dresses in all lovely shades, \$1.00, \$1.25 and \$1.50 values. Special 89c for this sale

Fancy Voles.
40 inches wide, new patterns in all shades. Special for this sale 89c

White Batiste Teddy Bears.
Embroidery and lace trimmed. Special for this sale 80c

Boys' "Koolfit" Athletic Underwear.
All sizes. Special 49c for this sale

Women's Knit Union Suits.
Loose and tight knee. Lace trimmed, all sizes; regular 75c value. Special for this sale 49c

Men's Cotton Hosiery.
Gray, navy, tan and white, all sizes, regular 25c value. Special for this sale 12 1/2c

Women's Pink Knit Bloomers.
Special for this sale 75c

Women's Pink Knit Vests.
With or without shoulder straps, very fine quality. Special for this sale 59c

Our Profit-Sharing Rugs have arrived. Very beautiful patterns. Bring your tickets with you Monday and get one free.

Women's \$12.00 Black Kid Colonial Pump.
High slender heels, long vamp. Price 10c. Special \$8.50

Women's \$10.00 Soft Black Kid Pump.
Louis heels, turn sole, special \$6.95

Women's \$4.50 Black Kid Lace-up Pump.
Medium heel, special \$3.95

Women's \$5.00 White Canvas Lace Boot.
Low heel, flexible sole, special \$3.95

Children's Patent Roman Sandals.
Good wearing soles, special \$2.95 and \$2.75 and

Children's White Canvas Shoes.
Good leather soles, special \$1.00

Baby's soft sole shoe special 10c

Tulsa Garment Factory

East Seventh and Kenosha.

Phone 764

Two-Day Dress and Waist Sale at—

GREENBERG'S

Monday and Tuesday

Every dress in the house on sale. Extremely stylish, dainty and appealing in fashion. A large variety to choose from. Made up in georgettes, crepe de chine and pussy willow.

\$15 Dresses at \$8.75

\$22.50 Dresses at \$12.95

\$30 and \$35 Dresses at \$22.50

Georgette Waists—Flesh, White, Maize and French Blue

The styles are especially charming—the materials are of a quality that will give excellent service. The colors are those that are most in vogue at the present time. Range of sizes is complete.

\$5.50 Waists \$3.45 \$7.00 to \$10.00 Waists \$5.95 \$12.50 to \$15.00 Waists \$8.95

122 South Main GREENBERG'S 122 South Main



The Barre, Vermont and Quincy, Massachusetts

GRANITE MONUMENTS

"The Rock Beautiful and Everlasting." For memorial purposes Barre and Quincy Granites are unequalled. The big quarries are running at full capacity this year and we can save you money on any memorial work desired.

Tulsa Monument Co.

Phone 7613

Corner Main and Brady Sts.



A certain wise Tulsan suggests that I say to you for fear of misunderstanding that—

"Manhattans are shirt-tails not cock-tails."

Complete with sleeves, body and cuffs—

\$2.50 to \$12.00

LEE LEVERING TAILORS AND FURNISHERS Hotel Tulsa

"I Know a Man"

—an officer of a Trust Company, to whom I can go and talk over my financial business matters, feeling that he will advise me properly, and that he will also take care of my needs to the best of his ability."

This statement, made by a customer, indicates the close personal relationship existing between our patrons and our officers.

We would like to establish a connection with you in which you would have this close, personal relationship.

Exchange Trust Company

Trustee, No. 14 on East Third Street, Tulsa, Oklahoma. Guardian, Adm. & Mort. Loan Dept.

The Doctor's Advice

By Dr. Lewis Baker

The questions answered below are general in character; the symptoms or diseases are given and the answers should apply to any case of similar nature. Those wishing further advice, free, may address Dr. Lewis Baker, College Building, College-Ellwood streets, Dayton, Ohio, enclosing self-addressed, stamped envelope for reply. Full name and address must be given, but only initials or fictitious name will be used in my answers. The remedies can be obtained at any well-stocked drug store. Any drugist can order of wholesaler.

appetite, am weak, listless and no ambition to work or seek recreation. Am tired all the time. Do you advise the strong Quinine?

Answer: A powerful rejuvenating nerve medicine should revive the dormant, sluggish condition and put new ambition and energy into your blood and nerves. Obtain three grain Calomel Tablets in sealed tubes, take as per directions.

"Valeria" writes: "I am suffering with constipation, biliousness, stomach and kidney trouble. I am getting worse all the time. What do you take?"

Answer: Put the trouble you mention the best remedy to purify the blood and get on the liver and kidneys is Three-grain Sulphur Tablets. Look sulphur tablets. Take three from each bottle, and sealed tube with full directions. These are pleasant to take. Regularly they will gradually effect relief. B. purifying the blood your biliousness will disappear.

Mr. H. H. C. writes: "I am informed that I have kidney trouble and that it is fast approaching a serious stage. What would you prescribe?"

Answer: If your symptoms are the usual ones, such as puffiness under the eyes, swelling ankles, scanty, copious or foul-smelling urine, accompanied by headaches, pains in the back, fever, etc., I would advise the immediate use of Bismuth Tablets, a very fine remedy for such difficulties, sold in sealed tubes with full directions for self-administration.

"Anxious Mabel" writes: "My hair is falling out so rapidly that I am very much afraid that I shall soon be bald. I have also a great deal of dandruff, which causes for scalp itching."

Answer: You can stop your hair from falling, stop dandruff and make your hair soft and fluffy if you will purchase a 4 oz. jar of plain yellow Mineral and use according to directions. It will promote a healthy growth of hair and bring back the intense



"Agnes X" writes: "I'm so dull and listless most of the time that I can scarcely accomplish my duties. I am listless and have little appetite, suffer with headaches and am far below normal weight. At one time I was quite plump and then I lost all the time, so if you can prescribe something to increase my weight I think I shall soon be myself again."

Answer: For anyone in your condition there is nothing I can give that would be so effective as a thorough course of three-grain Hypo-Nutrient Tablets. This little tablet supplies elements which increase the red blood supply.

"Fernand" writes: "Please give me a prescription for my rheumatism. I suffer greatly. A friend tried your prescription; was cured, but can't remember it."

Answer: Here is my favorite prescription for rheumatism: 1 tablet of potassium 2 grains; sodium salicylate, 4 grains; wine of colchicum, one-half ounce; comp. essence cardoli, 1 oz.; comp. tinct. balsam. 1 oz.; and syrup of mesquite comp. 5 oz. Take a teaspoonful at meal time and at bedtime.

Mr. R. D. asks: "Is it safe to reduce one's weight? I weigh 240 pounds and would like to reduce to at least 160 pounds. What is a safe, harmless remedy?"

Answer: Obtain of my well-stocked drug list a tube of 5-grain Arsenic Tablets and take as per directions accompanying. These tablets are very easy to take and quite reliable for obesity.

Geo. G. V. writes: "Perhaps you can prescribe for me, as I am at least 10 years 2 have suffered extreme nervousness, trembling and excitement are common, very